

Customer No.: 31561
Application No.: 10/064,061
Docket NO.: 8941-US-PA

9. (Original) The flip-chip package substrate of claim 1, wherein the power bump pad ring encloses a plurality of bump pads over 50% of which are power bump pads.

10. (Original) The flip-chip package substrate of claim 1, wherein the ground bump pad ring encloses a plurality of bump pads over 50% of which are ground bump pads.

11. (Currently Amended) The flip-chip package substrate of claim 1, wherein the signal ball pad rings encloses a plurality of ball pads over 50% of which are signal ball pads.

12. (Original) The flip-chip package substrate of claim 1, wherein the power ball pad ring encloses a plurality of ball pads over 50% of which are power ball pads.

13. (Original) The flip-chip package substrate of claim 1, wherein the ground ball pad ring encloses a plurality of ball pads over 50% of which are ground ball pads.

Claim 14-20 (canceled).

REMARKS

Present Status of Patent Application

Claims 1-20 remain pending of which claims 1, 4, 7, 8 and 11 have been amended and claims 14-20 have been canceled to more explicitly and clearly describe the claimed invention. It is believed that no new matter adds by way of amendments to claims or otherwise to the application. For at least for the following reasons, Applicant respectfully submits that claims 1-13 patentably define over the prior art of record. Reconsideration is respectfully requested.

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Discussion of Claims Rejections

1. The Office Action rejected claims 1, 2, 5, 8-15, and 18-20 under 35 U.S.C. 102(e) as being anticipated by Arima et al. (US-6,479,758, hereinafter Arima).

Applicants respectfully disagree and traverse the above rejections as follows. Independent claim 1, as amended, are allowable for at least the reason that substantially Arima fails to teach, suggest or disclose every features of the claimed invention. More specifically, Arima failed to teach, suggest or disclose a flip-chip package comprising at least "at least two signal bump pad rings around the core bump pads; at least one power bump pad ring around the core bump pads; and at least one ground bump pad ring around the core bump pads, wherein one of said power bump pad ring and one of said ground bump pad ring are positioned between said two signal bump pad rings; as required by claim 1."

The advantage of the above arrangement is that at least a ground plane and a power plane can be arranged close to each other in the package substrate so that the capacitance can be effectively increased to stabilize the power supply system. Further, the above arrangement can also effectively reduce the overall wiring length between the bump pads and the ball pads and therefore the plane inductance and synchronous noise can be effectively reduced, and thus the electrical performance of the package can be substantially improved.

Instead, substantially Arima teaches a wiring board having a plurality of wiring layers, wherein a plurality of signal wiring terminals and a plurality of power supply terminals are arranged on a principal plane of the wiring board, the plurality of signal

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wiring terminals or the plurality of power supply terminals being connected to any one layer of inner layers of the wiring layers, and wherein signal wiring terminals, which are connected to wirings formed on the same layer, among the plurality of signal wiring terminals are arranged so that at least one side of the inside and outside of a region, in which the signal wiring terminals connected to the wirings formed on the same layer are formed, is surrounded by the power supply terminals. In other words, substantially Arima fails to teach, suggest or disclose that "at least two signal bump pad rings around the core bump pads; at least one power bump pad ring around the core bump pads; and at least one ground bump pad ring around the core bump pads, wherein one of said power bump pad ring and one of said ground bump pad ring are positioned between said two signal bump pad rings;, as required by claim 1"; instead, Arima substantially teaches that the signal wiring terminals are surrounded by the power supply terminal. Accordingly, Applicants respectfully submit that Arima cannot possibly anticipate the claimed invention in this regard.

For at least the foregoing reason, Applicants respectfully submit claims 1, 2, 5 and 8-13 patently define over Arima. Reconsideration and withdrawal of these rejections is respectfully requested.

2. *The Office Action rejected claims 3, 4, 6, 7, 16 and 17 under 35 U.S.C. 103(a) as being unpatentable over Arima.*

Applicants respectfully submit that since claims 3, 4, 6, 7 depend from independent claim 1, and claims 16 and 17 have been canceled. Because independent claim 1 is allowable for at least the reason set forth above, therefore claims 3, 4, 6 and 7

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also patently define over Arima for the same reasons as well. Reconsideration and withdrawal of these rejections is respectfully requested.

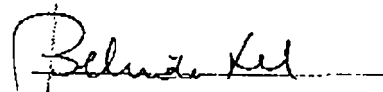
CONCLUSION

For at least the foregoing reasons, it is believed that all pending claims 1-13 are in proper condition for allowance. If the Examiner believes that a conference would be of value in expediting the prosecution of this application, he is cordially invited to telephone the undersigned counsel to arrange for such a conference.

Respectfully submitted,

Date :

June 23, 2003


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